What's NEXT?

The Nationwide Evaluation of X-Ray Trends (NEXT) is a national program conducted annually to measure the x-ray exposure that a standard patient receives for selected x-ray examinations. This program is conducted jointly by the Conference of Radiation Control Program Directors (CRCPD), an association of state and local radiation control agencies, and the Food and Drug Administration's (FDA) Center for Devices and Radiological Health (CDRH).

In 1992 the selected examination was mammography, an examination which had previously been surveyed in 1985[1] and 1988[2]. Breast exposures were measured using each facility's technique for the craniocaudal (CC) view using a standard reference imaging phantom which approximates a 4.2 cm compressed breast for screen-film radiography. (4.7 cm compressed breast for xeroradiography.) The breast is assumed to be a 50/50% glandular/adipose tissue composition.

The data is presented only for screen-film mammography with grid as there are now an insufficient number of facilities performing xeromammography or S/F mammography without a grid to be statistically significant. Each set of data provides information on the entrance skin exposure (ESE) and half-value layer (HVL). From these data the mean glandular tissue dose was calculated.[3] Radiographs were obtained using a CDRH phantom which was equivalent in thickness to the phantom used by the American College of Radiology in their accreditation program. The radiographs were evaluated and given an image quality score. Surveys were performed by CDRH-trained participating state radiation control personnel.

The information contained herein is for guidance. The implementation and use of the information and recommendations are at the discretion of the user. The mention of commercial products, their sources, or their use in connection with material reported is not to be construed as either an actual or implied endorsement by CRCPD or CDRH.

[1]Nationwide Evaluation of X-Ray Trends (NEXT). Tabulation and Graphical Summary of Surveys 1984-1987. Conference of Radiation Control Program Directors, Frankfort, KY, CRCPD Pub. 89-3.

[2]Nationwide Evaluation of X-Ray Trends (NEXT). Tabulation and Graphical Summary of Survey for 1988. CRCPD Pub. 90-7.

[3]Handbook of Glandular Tissue Doses in Mammography, HHS Publication FDA 85-8239, March, 1985.

SURVEY RESULTS

Your Facility

Target _____

Filter _____

HVL (mm Al) _____

Mean glandular dose (mRad) _____

Processing cycle (Std/Ext) _____

Processing speed STEP* test result _____

(refer to inside for recommended range)

Phantom image score
()= ACR min pass

fibers (4) _____

specks (3) _____

masses (3) _____

* Sensitometric Technique for the Evaluation of Processing

Nationwide Evaluation of X-Ray Trends

(NEXT)

1992 Mammography X-Ray Data

Conference of Radiation Control Program Directors

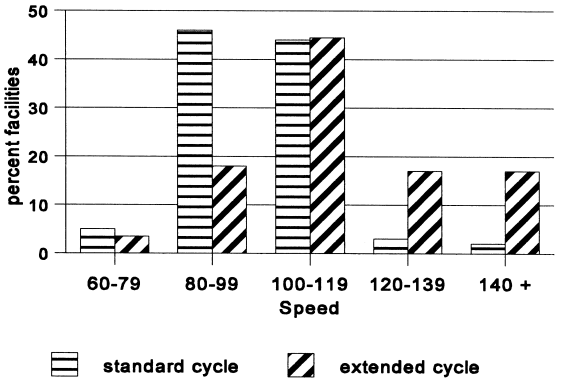
and

The Center for Devices and Radiological Health

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Food and Drug Administration

1992 NEXT Mammography Survey Results

Processing Speed



Normal Processing*: std= 80-120 Ext= 100 - 170
* MQSA limits for normal processing.

Processing : Percent Facilities by Cycle

cycle	under	normal	over
std	4.7	90.5	4.8
ext	21.7	77.1	1.2

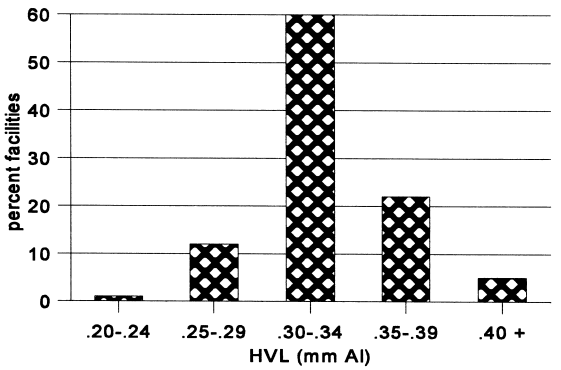
Statistical Evaluation of Mammographic Parameters

	Mean Glandular Dose (mGy)*	Kilovoltage (kVp)	HVL (mm Al)
Mean	1.50	27	0.35
Std dev	0.56	1.4	0.05
min	0.43	20	0.17
max	4.64	32	0.71
N	331	342	336

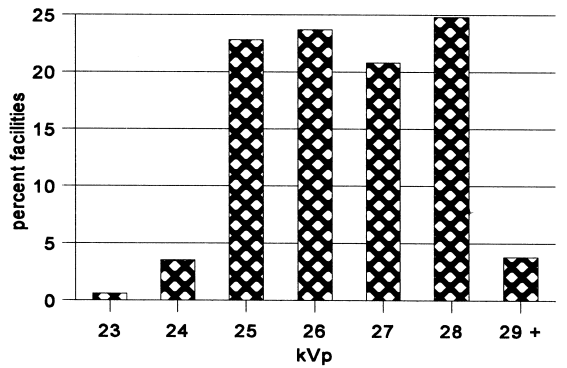
* **note**: 1 mGy = 100 mRad

1992 NEXT Mammography Survey Results

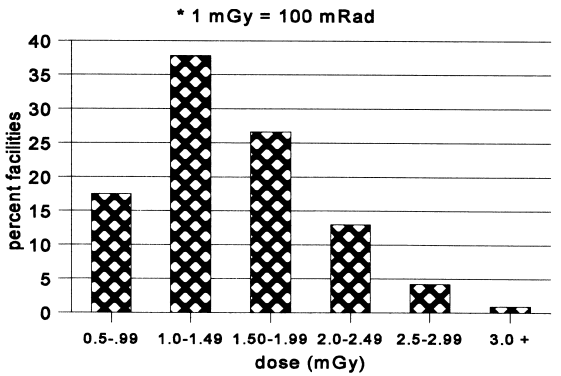
HVL (mm Al)



kVp



Mean Glandular Dose* (mGy)



1992 NEXT Mammography Survey Results

Comparison of 1992 NEXT with 1995 MQSA inspection results[1]

	1992 **NEXT**	1995 **MQSA**
Mean entrance skin exp (mR)	790	910
Mean kVp	27	26
Mean HVL (mm Al) **	0.35	0.32
Mean glandular dose * (mGy)	1.40	1.50
Mean processing - std cycle	98	97
Mean processing - ext cycle	115	129
% fac's pass'g MQSA drkrm fog	38	89
Mean phantom obj's visible†		
fibers	4.4	4.6
specks	3.3	3.8
masses	3.8	3.7
Mean O. D. phantom film	1.13	1.40

[1]MQSA results are those as of 10/95
*Mean glandular dose for 1992 was recalculated here only for comparison purposes, using same dose tables as for MQSA values of dose.
**1992 NEXT used 1100 alloy al; 1995 MQSA used 1145 alloy.
†Objects are raw scores without artifact subtraction. (Artifacts were not evaluated in the 1992 NEXT survey.)